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DATAMATION FEATURE INDEX- Jan. to June '65

JANUARY

Automated Displays p. 24-37

Four articles cover various facets of automated data display. Dr. Ruth Davis traces the short, spasmodic development . . . from Babbage to SAGE. Albert V. Shortell Jr. describes the use of displays for on-line programming. George W. N. Schmidt describes the display system for NORAD. Irv Abzug covers a 360 subsystem combining display, light pen and film recorder/scanner for on-line graphic information processing.

Dear Mr. President p. 39
by Louis Fein

A computer specialist examines some of the assumptions underlying two views of the effects of automation, and suggests the need for more information before either is translated into action.

The Large Scientific Job Shop p. 42
by L. I. Press

The continually growing backlog of work of computer installations indicates a growing mismatch between today's capabilities and tomorrow's needs. The author offers guidelines for systems designed to meet those needs in the face of suddenly relaxed hardware constraints.

FEBRUARY

Message Switching p. 24-31

Two articles highlight topic. H. J. Mitchell looks at tomorrow's world through the I/O channels of the message-switching computer, linked to international communications networks. Jim Atwood, Jack Volder and Gerald Yutzi look at the system design characteristics and on-line performance of a C-8401-controlled message switching system.

Computer Science at West Point p. 32
by Major William F. Luebbert

Two-part article concluded in March issue discusses philosophy behind the program, curriculum, hardware, and an input technique for handling large numbers of students' problem decks.

The Evolution of FORTRAN p. 37
by Charles Wimberly

Comparing the development of FORTRAN to the evolution of natural language, the author claims that FORTRAN has developed more rapidly because of the financial investment, but the forces involved still follow a predictable pattern. He opposes premature insistence on compatibility and the freezing of language specs.

The QUIKTRAN System p. 42
by John H. Morrissey

Commercially-available personal computation service allows subscribers to time-share a 7040/44, using remote 1050's. Highlighted are design, equipment configuration and language facilities.

(con't p. 106)

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FEATURE INDEX . . .

Seven Ways to Inhibit Creative Research p. 52
by Lauren B. Doyle

Seven forms of pressure applied to researchers in the interest of encouraging good work, but which have the effect of fencing in creative possibilities.

MARCH

Computing in Australasia p. 26-40

Five articles on computing in Australia start off with an introduction to the country and its government; preparations that resulted in a six-city linkage of machines for scientists by the Bureau of Census and Statistics; a survey of hardware, usage, curricula and staffing for computers in universities; reminiscences of CSIRAC, the oldest machine still in use; and the different approaches computer salesmen have to take when selling to Aussies. Other articles include reviews of computing in New Zealand, in Southeast Asia, and a report on the Kanpur Conference.

APRIL

Automated Checkout p. 28-35

Two theme articles include the first of a two-part paper by Dr. Victor Mayper on automatic-test programming, the applicability of simulation, problem-oriented languages, and summary conclusions of the Project SETE survey. The second article, by B. L. Ryle, describes ATOLL (Acceptance, Test or Launch Language), the most prevalent language for this application.

Software for Random Access Processing p. 36
by Charles W. Bachman

Described in the environment of processing engineering parts lists is Integrated Data Store, software package for use with auxiliary storage media.

Hyphenless Justification p. 42
by George E. Kunkel & Tilmon H. Marcum

A significant advance in photocomposition eliminates end-of-line hyphens while avoiding excessive word-spacing.

Programming 360-Class Machines p. 47
by Martin E. Hopkins

In this advance peek, author supplies more information than is available in basic manuals. Diagram shows typical instructions.

Developing Systems Timing Specs p. 53
by Dennis G. Price & Dennis E. Mulvihill

This paper describes the "full" specifications appropriate to acquiring a computer for a "typical" dp organization, offers alternative approaches more suitable for job-shop operations or system upgrading.

COBOL vs. FORTRAN: A Sequel p. 65
by Capt. J. P. Junker & G. R. Boward

In answer to an earlier DATAMATION

	St. Paul, Minn. (Defense Systems Division)	St. Paul, Minn. (Data Processing Division)	Whippany, N. J.	San Diego, Calif.	Blue Bell, Pa. (suburban Philadelphia)	Johnsville, Pa. (Naval Air Development Center)	El Segundo, Calif.	Washington, D. C.
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Integrated Systems Programmers	C	A		D		C		E
Aerospace Programmers	C					C		E
Systems Programming Design	C	A			B			
Technical Programming Support		A			B			
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article, these users prefer 7094 COBOL over FORTRAN for business dp.

MAY

IFIP Congress 65 p. 31-39

Five articles cover computing around the world. D'Agapeyeff covers software in Europe, and John Pinkerton covers hardware in Europe. Recently returned from a tour of computation and cybernetics research centers in Russia, Dr. Edward Feigenbaum reports on people, practices, and publications. Computing in Latin America highlights the inordinately active role of universities, and spots future trends and problems; and finally the historical development and current status of computing in Canada are traced by Glinski.

IBM vs. RemRand p. 54
by George Schussel

The first of a two-part article concluded in June issue chronicles the early struggle for leadership of the computer field.

JUNE

Updating an I. R. System p. 24
by Jack Sieburg

The author explains how to set up and maintain an information retrieval system, using the Air Force's project LITE as an illustration.

Quality Control & Assurance in Records Conversion p. 27
by Norman Schneidewind

Author presents an analysis of the problems involved in specifying and checking the accuracy of large file conversions, with a method of choosing and applying suitable standards. He also gives definitions of terms commonly used in quality control, an outlined summary and references.

Characteristics of Priority Interrupts p. 31
by Emil R. Borgers

Author defines criteria for interrupt systems and discusses three methods now in use.

Computer Sectioning and Class Scheduling p. 35
by Martin Faulkner

Computer program at Washington State helps to solve the problem of building a time schedule of course offerings with a minimum number of student schedule conflicts. Major modifications, the time problem, processing and reports, and costs and advantages are included.

What's So Hard About Software? p. 50
by Frank P. Lambert

There seems to be "a shifting focus in data automation research and a growing recognition of the impact of software on total system performance." Author pursues this thesis and makes suggestions for finding out what you really need. ■

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DATAMATION FEATURE INDEX–July-Dec. '65

JULY 1965

Automated Banking

A variety of discussions on banking edp begins with a critical review and appraisal of developments, by Robert V. Head, showing banks now moving toward real-time and no-check operation. In a fictitious report, Dale L. Reistad states the problems facing computerized banks. Advances in checking account operations include a study of a commercial bank handling its own accounts on-line by J. T. Berryman, and a report by John R. Roche and Earl S. Rogers on an experiment in voice-answerback systems. The bank of the future is described by Arthur S. Kranzley. In the final article, Merle D. Courson explains one bank's shift to integrated account numbering.

The Used Computer Market p. 48
by George H. Heilborn

The sale and purchase of computer equipment is broadening the data processing field. A broker in dp systems discusses the effect of new equipment on the market, the types of available equipment, advantages of purchasing used systems.

AUGUST 1965

The RAND Symposium p. 24

The first of two articles defines problems facing the profession, and outlines the knowledge necessary for military leaders, college graduates, etc., who confront computerized operations. Discussion also includes implications of current trends toward remote console time-shared systems and interactive languages.

Telephone Switching by Computer p. 31
by Dr. Erna S. Hoover

Supervisor of systems planning group describes the new electronic switching system (No. 1 ESS) in use by Bell Telephone Labs. A specially-developed stored program technique facilitates addition of normal and special services for phone subscribers.

Choosing a Set of Computers p. 37
by Alan C. Bromley

Article describes studies that led to recommendation for next step in computers for a large corporation. Study group utilized a scoring method that itemized the goals of management and characteristics of company's data processing in order to determine needs.

Programmers and Cheap Computing p. 58
by T. B. Steel, Jr.

Article describes the effects on programming of a batch-fabrication technology leading toward increased speed, capacity, reliability and complexity of digital computers—and a large reduction in cost/performance ratio.

SEPTEMBER 1965

Data Acquisition pp. 24-52

Although the new generation of hardware and software features designed to enhance on-line operation encourage centralization, Justin A. Perlman suggests—in the lead article—that key factors to consider should be company's operation, history and character. Data transmission/acquisition charts list major manufacturers according to input-output, speed, transmission medium, special capabilities, and pricing. In the third article, James D. Edwards discusses the operation of Lockheed's Automatic Data Acquisition application. R. W. Parker concludes the section with a description of American Airlines' SABRE.

Patients On-Line p. 57
by Robert L. Patrick and Marshall A. Rockwell, Jr.

The Shock Research Unit of the USC School of Medicine has an on-line system in the most critical of environments. Article studies computer-assisted medical treatment, discusses input-output problems and future system requirements.

OCTOBER 1965

Hybrid Computers pp. 24-37

Three articles include a tutorial that fits hybrid developments into historic perspective and classifies systems into four types (Hybrid Computation, by Thomas G. Hagan); a description of one company's software package for real-time simulation, applicable to both all-digital and hybrid simulation (Simulation Software, by Ralph T. Dames); and a look at the latest hybrid computer (The EAI 680, by Paul Landauer).

How to Tell if It's FORTRAN IV p. 38
by Daniel D. McCracken

More than two dozen languages are called FORTRAN IV, but they differ widely in source language features. Article includes two tests to determine which is the real F-IV. Comparison charts list some of the more important features offered in compilers of leading manufacturers.

Programming Documentation p. 44
by Robert G. Snyder

Although documentation is a byproduct of a good systems job, this laborious task becomes even more important during computer system conversion. Systems analyst describes what goes into an effective job manual.

Operating Systems: One Installation's Experience p. 54
by Robert F. Brockish

Covering both business data processing and scientific computing, the author considers the advantages and disadvantages of operating systems in discussing job throughput and programmer productivity.

Computer Science Education in Europe p. 77
by Peter C. Patton

Author describes variety of approaches to the teaching of this subject by European

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universities. While still behind some U.S. schools, increasing attention is being devoted to the need for qualified computer scientists.

An On-Line Savings & Loan System p. 81
by Neal J. McDonald

System organization, hardware and software are covered in this description of an installation with 21 on-line terminals.

NOVEMBER 1965

Automated Secondary Storage Management p. 24
by F. B. MacKenzie

Author explains the operation of the basic control mechanism employed in the B 5500 computing system to invoke the store management process, often called "single-level store," and offers evidence to demonstrate its effectiveness.

Integrated Circuits for Commercial Computers p. 29
by William H. Richmond

Tracing the development of integrated circuits, author contrasts the monolithic and hybrid varieties, covers factors affecting their costs, delves into their use as memory elements, and describes circuits for "fourth-generation" computers.

The Two Sides of Time-Sharing p. 33
by Martin Greenberger

Author discusses the system (hardware) and user aspects of this subject, in terms of both present and future capabilities, based on the facilities at MIT's Project MAC.

Data Transmission Systems p. 51

A supplement to the information appearing in the September 1965 issue, the charts include features of selected input and transmission-oriented devices.

DECEMBER 1965

The Computer in Medicine pp. 24-49

The introductory article, by Evon C. Greanias, surveys current applications in biomedical dp and areas that have attracted researchers' attentions. It is followed by a discussion of the main features of an experimental information system at the Massachusetts General Hospital. In the third feature, Dr. Cesar A. Caceres gives a progress report on computer analysis of electro- and phonocardiograms, of brain wave recordings, respiratory waveforms from the lungs, and dye dilution curve from a heart's output. Benjamin Kleinmuntz concludes the section with a description of his efforts to simulate the clinical judgment process of a human diagnostician.

Comparing the Compacts p. 61
by Edward O. Boutwell

Author examines short-word-length computers, considers the programming characteristics imposed by the short words and their effect on use, and identifies newer features appearing in machines of this class.